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ABSTRACT

A sample of 43 boys and 43 girls (aged 32 to 63 months) was observed during interactions with a 13-month-old infant in a structured situation in a day care center. Attendance in an area surrounding an empty playpen, and behaviors in that area, were recorded on four preliminary days to adapt children to observers and measure baseline behavior; on two days when a baby was in the playpen; and on two days when the baby was absent but a control stimulus, a tank with a goldfish, was placed in front of the playpen. Among the findings: (1) girls spent significantly more time in the area than boys when the baby was present, but not on other days; (2) older boys spent significantly less time in the area than younger boys when the baby was present, but there was no age effect for girls; (3) girls and boys who were in the area when the baby was present spent approximately the same proportion of their time engaging in baby-related activities. The most common of these activities involved the establishment and maintenance of proximity with the infant by approaching and touching the playpen. Verbalizations about the baby were frequent, but to the baby were rare. The study raises questions concerning the evolution of observed behavior: the role of adult modeling, effect of the model's sex, the children's past experience with infants, the part played by age and sex, and behavior of the infant as stimulus in reciprocal interactions. (Author/JH)

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Sex Differences in Young Children's Responses to an Infant: An Observation Within a Day Care Setting

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Forty-three boys and forty-three girls from 32 to 63 months old were observed during interactions with a 13-month-old infant in a private day care center. Attendance in an area surrounding an empty playpen flanked by three observers was recorded on three preliminary days, on two days (Days 5 and 6) when a baby was in the playpen, and on two days (Days 4 and 7) when the baby was absent but a control stimulus, a goldfish, was present. Children's behaviors while in the area were recorded. Girls spent significantly more time in the area than boys did when the baby was present, but not on other days. Older boys spent significantly less time in the area than younger boys when the baby was present, but there was no age effect for girls. Those girls and boys who were in the area when the baby was present spent approximately the same proportion of their time engaging in baby-related activities.

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Although it is generally acknowledged that there are sex differences in our society in adult's reponsiveness to infants, sex differences among children have scarcely been studied. Maccoby and Jacklin (1974, p. 220) after surveying the scanty literature, remarked that it would be interesting to know "whether young boys and girls differ in their response to younger and more helpless beings."

The present study was undertaken to provide information about this question. Preschool girls and boys were observed in free interactions with a 13-month-old baby in a structured situation within a day care setting. Attendance in the area surrounding the baby, and behaviors in that area, were recorded. Although the situation involved only a moderate departure from the children's regular routine, a comparison situation was included as a control for novelty. Adult modeling was avoided.

METHOD

Subjects

Subjects were 43 boys and 43 girls, ages 32 to 63 months (mean = 49.2 months for girls and 49.7, for boys), the entire population of a large classroom at a privately operated day care center. School attendance varied from day to day. Ten of the children (five boys and

five girls) entered the class, transferring from another class at the center, after the three preliminary sessions were completed and before the four test sessions had begun. Two children, a boy and a girl, left the class before the study was completed. Approximately 85% of the children were white. Thirty-seven had older siblings, nine had younger siblings, and twelve had no father in the home.

Setting and Routine

All observations took place in one classroom of the center. The room was L-shaped, one wing of which measured 72 x 28 feet, and the other, 38 x 18 feet. All of the teachers and supervisory personnel who were in daily contact with the children were female. Although the baby who served as the stimulus in the study was new to the school the children were in regular contact with infants and toddlers within the school setting, sharing a large outdoor playground with several groups from eight months to three years old, who occupied other buildings at the center. Adult visitors were also familiar to the children since the center often had observers.

The daily routine included a time at midmorning during which the children chose from among five or six activities, each led by a teacher at one table or area in the room. The lights were dimmed and a teacher announced the activities and their locations. The activities varied moderately from day to day, always including painting or drawing, music and dancing, and work with clay or paper. Children were free to move from one activity to another at will, and sometimes played in small, spontaneously formed groups.

Procedure

The procedure consisted of a modification of the center's usual midmorning routine. An area usually used only as open space was designated as the locus for an additional optional activity. As such, attendance in this area was in competition with participation in activities in other areas. The 116 x 85 inch area was against one wall at the juncture of the two wings of the room. It was marked off with chalk and was visible from all parts of the room. The area contained a 27 x 47 inch playpen, with three simple infant toys in it. One side was against the wall and three observers, one male and two female, sat with backs to each of the exposed sides of the playpen. On two of the four test days (Baby Days) a 13-month-old white baby girl occupied the playpen. On the remining two test days, (Fish Days) the baby was absent but a large rectangular fish tank with a gold fish was placed in front of the playpen.

There were seven experimental sessions: three preliminary sessions with playpen, but without baby or fish, to adapt the children to the observers, materials, and procedure, and to measure baseline behavior, the fourth and seventh sessions (Fish Days), and the fifth and sixth sessions (Baby Days). At the beginning of each of the first three sessions the teacher dimmed the lights and made her usual announcements of the optional activities and their locations, and then added "We have some visitors at the end of the room. They will be busy working so they won't be able to talk to you, but you may go over to see them if you like." During the following four (test) sessions she said instead, "Our visitors are here and they have a goldfish (baby) with them today." Attendance and behavior in the area were recorded for three

five-minute periods per session interspersed with five minute periods of no recording. Following the third recording period observations were terminated because children were sometimes taken out of the room to the playground.

Each child wore a card with an identifying number on all experimental days. Each observer was responsible for recording attendance and behavior in one section of the area. Reliability was recorded during off-periods with two observers recording in the same section of the area. Recorded behaviors included approaches to observers, playpen, and fish tank, when accompanied by focused looking at the object approached, touching observers, peers, playpen, or fish tank, verbalizations and other behaviors (e.g., kisses) directed toward the infant, observers, peers, or goldfish. Activities were classified as being directed to the observers, peers, fish (or fish tank), or to the infant (or playpen). Those verbalizations concerned with the infant or playpen were classified as infant-oriented behavior, and those concerned with the fish or fish tank were classed as fish-oriented behavior, without regard to whom they were directed. Interobserver reliability for five-minute periods ranged from .94 to 1.00 (mean = .98) for children's presence in the area, and from .92 to 1.00 (mean = .96) for presence or absence of the above activities for individual children.

When the occasion arose the observers told the children not to touch the baby and not to reach inside the playpen or fish tank. Except for these instructions and to give minimal answers to children's questions, the observers did not interact with the children or the baby.

Results

Inspection of the data showed no consistent trend for either sex to increase or decrease its attendance in the experimental area over successive days of the experiment. However, girls spent more time in the area than boys did on the two Baby Days. Those who were in school both days attended an average of 2.08 periods, of a possible 6, while boys were in the area an average of 1.28 periods ($t = 2.350$, d.f. = 73, $p < .025$). In contrast, time spent in the area on the two Fish Days was similar for both sexes ($x = 1.22$ periods of a possible 6 for girls, and 1.35 periods for boys). There was no significant sex difference for periods in the area on the three Preliminary Days, although there was a trend for girls to be there more than boys (girls in school all three days: $\bar{x} = 2.03$ periods of a possible 9; boys' $\bar{x} = 1.58$ periods; $t = 1.057$, d. f. = 56, $p > .10$).

Older boys spent about half as much time in the area on Baby Days as younger boys (t for the 12 oldest vs. the 12 youngest boys who were in school both days = 1.719, d. f. = 22, $p < .50$. This age relationship did not hold for boys on other days. There was only a very small insignificant age trend for girls (t = for 12 oldest vs. 12 youngest girls = 0.269, d.f. = 22, $p < .35$). Only one aspect of family structure may have been associated with attendance in the area on Baby Days. Although few of the children had younger siblings, there was a striking difference between the four boys and five girls who did. None of the boys entered the area on Baby Days, although they did so on other experimental days. In contrast, girls with younger brothers and sisters spent even more time in the area when the baby

was present than did the remaining girls.

Figure 1 shows for each sex the number of periods during which

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Insert Figure 1 about here

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baby-oriented responses were recorded, as a proportion of the total number of periods each sex spent in the area, compared with observer-, peer-, and fish-oriented responses. It should be noted that during one five-minute period it was possible for a child in the area to make several types of responses, or none.

Although the baby was not present on Fish Days, or Days 1 through 3, children often talked about babies or responded to the presence of the playpen. It is interesting that, though boys spent fewer periods in the area on Baby Days than girls, when boys were present they spent about as much time making baby-oriented responses as girls did. The largest sex difference in the behavior of children in the area occurred on Fish Days when boys attended to the fish more than girls did. Observer- and peer-oriented responses were less frequent, particularly on Baby Days.

Figure 2 shows the major types of baby-oriented behaviors

Insert Figure 2 about here

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which occurred and the proportion of total time in the area during which the boys and girls there engaged in each activity. The most common of these involved approaches to the playpen, establishment of proximity,

when possible, by touching or holding on to the playpen; and focused looking. At times too many children surrounded the playpen for each child to touch it, and therefore two categories of behavior were combined: approach to the playpen with focused looking, and playpen touching. Although playpen touches were sometimes brief they were rarely casual; and most often they were combined with a period of deliberate attention.

There were relatively few baby-related behaviors on Fish Days, presumably because children were occupied with the fish. Baby-oriented behaviors were more common on Days 1 through 3, however, with playpen-oriented responses quite frequent on these days. In fact, boys spent more of their total time in the area at the playpen on Days 1 through 3, when it was unoccupied, than on days when the baby was in the playpen.

Almost all the verbalizations accompanying children's approaches to the playpen, before the baby was introduced, were related to anticipation that the playpen was for a baby; and with only five exceptions, verbalizations about babies, when they occurred, were combined with approaches to the playpen. Verbalizations were more frequent and more varied when the baby was present, including questions about her name, sex, and parents, and descriptions of her size, clothing and activities.

Direct interactions with the baby occurred during a little more than one fifth of the time girls and boys were in the area. One-third of the girls, and one-sixth of the boys, who were in school on both Baby Days engaged in interactions with her. Although girls spent more

time in the area on these days, boys and girls spent approximately the same proportion of their total time there interacting with the baby. Attempts to touch the baby were, by far, the most common type of interaction despite prohibitions against reaching into the playpen. A major reason for this was the baby's behavior. During most of her time in the playpen she stood at the railing or walked around the perimeter holding on to the railing, sometimes reaching out, and on ten occasions touching one of the children. Those children who spent the most time at the playpen, who reached toward her, or in some way attracted her attention, were most likely to be touched by her and it was often impossible to determine whether the child or the baby initiated the physical contact when it occurred. However, it was obviously rewarding, since nine out of the ten children whom she touched subsequently engaged in further interaction with her.

There were several types of behaviors directed toward the baby which successfully engaged her attention, but verbalizations to the baby were surprisingly rare. Only four children talked to the baby, and these verbalizations were short and simple, ranging from one to four words. Several children laughed, smiled to the baby, made noises to her, kissed her, or tried to hold her attention by less ordinary methods. One boy, for example, spent five of the six periods during which the baby was present in varied but totally nonverbal interactions with her, snapping his fingers in front of her, making noises to her, positioning a chair next to her playpen and climbing on it several times to hold up papers for her to see.

DISCUSSION

Significant differences were observed between girls and boys in attraction to a 13-month-old infant, while no differences were observed in attraction to a control stimulus, a goldfish. Although the early sex difference is striking, the data shed no light upon the mechanisms involved in the establishment of the difference. The observers, who were the baby's caretakers during the study, were both male and female but the experiences which the children previously had with infants and younger children within this setting were almost exclusively under the supervision and control of female adults. Similarly, although the observers took care not to model or reinforce behavior directed toward the baby, we might assume that considerable modeling and reinforcement had already taken place. It is certainly possible that girls' and boys' behavior toward younger children had been differentially affected by female adults and that, even very young children perceive that interactions with infants are more appropriate for females than for males. This might also account for the difference between girls and boys with younger siblings, who presumably have had ample experience with younger children in their homes. Female adult control is probably typical of most situations in which young children come into contact with infants and, as long as this is so, it is not possible to decide whether any pre-existing sex differences, e.g., genetic, are involved.

It is interesting that even within the narrow age of subjects in this study, the older boys spent only half as much time in the area as the younger boys. We would expect rapid changes during the preschool years in the establishment of sex-role behavior. If infant-oriented

behavior is considered to be incon nt with the male role, age-sex differences of this sort might be expected.

Although girls spent more time near the baby, girls and boys who were in the area spent approximately the same proportion of their time there in baby-oriented activities. The most common of these activities seemed to involve the establishment and maintenance of proximity with the infant by approaching and touching the playpen. Verbalizations about the baby were frequent, but verbalizations to the baby were surprisingly rare, and were only one of the many ways in which children attempted to engage her attention. It may be that talking to a preverbal infant is a typically adult response which is common among young children only when adults are actively modeling and reinforcing this type of behavior.

Another unanticipated finding was the extent to which the baby initiated and maintained interactions with the children by init ating physical contact and by responding to children with smiles, noises, and attention. The children who were near enough to be rewarded by her attention were those who were originally attracted to her. Almost all of these children subsequently continued the interaction. Studies of nonhuman primates (cf., Harlow, 1962) show that males put in contact with infants eventually respond to the infant's overtures in a manner much like females, although they may not do so initially. It might be interesting to do likewise with male and female children who do not spontaneously choose to be near infants. It might also be profitable to compare patterns of behavior directed to a younger, less mobile, and less responsive infant with behaviors directed to an older baby.

The present study was designed to observe behaviors toward infants in a rather typical day care setting, altering the situation and routine as little as possible. As a descriptive study, it can only raise questions about the processes involved in the evolution of observed behavior. These questions include those concerned with the role of adult modeling and the effects of the model's sex, as well as the children's past experience with infants, and the part played by the characteristics, e.g., age and sex, and behavior of the infant "stimulus" in reciprocal interactions. Further experimental variations are necessary if answers are to be provided.

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FOOTNOTE

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FIGURE CAPTIONS

Figure 1. Percentage of total number of periods in the area during which boys and girls attended to the baby, observers, peers, or fish.

Figure 2. Percentage of total number of periods boys and girls spent in the area on experimental days during which they engaged in various baby-related activities.